

Till January 14 no glimmer even was visible from Naples. On that evening, however, there was a slight red reflection, which continued till the 24th, when much vapour was escaping. The next day it became quiet.

February 2, slight glimmer visible again.

From February 19 to April 23, the mountain remained very quiet; only the slightest glimmer visible at night. That day I visited the crater.

The crater and its rim of December and January occupies about one-third of the plain of lava filling the 1872 crater. The former overlaps the latter in a north-east direction, and is not therefore concentric. As we cautiously mount its northern edge to avoid the falling scoria cakes, it is seen that the craterial hollow has very steep sides, about 40 metres deep, and 150 metres in diameter. It showed the usual interlamination of lava and its fragmentary products. Rising from its floor was a small cone of eruption, that had been building up since the beginning of the year, its centre, of course, occupied by the vent, but no crater. The fissure mentioned in my last report was gradually filling up by the crumbling in of its sides; there was still oozing a small stream of lava from its lower extremity. This gentle flow of fluid rock had been going on without interruption since December, and during that period had been thrown out to a considerable amount, which, however, from slow exit soon cooled and had not enough impetus to travel far, chiefly piling itself up at the toe of the cone, and spreading a short distance over the *Atrio and Valle dell' Inferno*.

On May 13, became slightly more active, which continued till the 17th, the day of the eclipse of the sun. On that evening the reflection was very brilliant from a much increased flow of lava on the same side. From May 18 till June 6, gradually diminishing activity, especially during the last week. During the 4th and 5th, Prof. Palmieri recorded a continued uneasiness, as shown by the Vesuvian Observatory and University seismographs. That disturbance was the forerunner of a sharp earthquake shock, which occurred at 4.47 a.m. at Isernia and Vinchiaturio in the Apennines. At 8 a.m., when I scanned the crater with a glass, there seemed to be an increased volume of vapour from the fumaroles, and the main column was much more bulky and dense. In the evening the explosions reached a considerable height, and were very brilliant. On the 7th the same, but on the 8th quieter.

We have here a small but good example of seismic energy exhibiting its focus of intensity in a mountain range, yet at the same time setting up sympathetic activity in the neighbouring volcano. In fact, I believe that if more accurate and regular observations were carried on of earth tremors and the phases of volcanic activity, at many points scattered over such a country as Italy, much might be learned of the internal anatomy and physiology, so to speak, of such an area.

I say Italy in particular, for many reasons. The principal, however, are its simple structure, thus avoiding the various complications that must necessarily arise if its geology were very intricate. Again, the history of many of its principal seismic events are far more complete and extend farther back than that of any other country. In fact, we may look forward to the time when seismology and vulcanology will be placed on much the same basis as meteorology, and probably with equally important results.

The mountain from the last date to the 29th remained tranquil, no reflection being discernible at night. That evening, however, the ejections were to be seen distinctly. The following day it was the same, but on July 1 the activity had increased, and the lava that had now been arrested for weeks burst forth again at its old exit.

The mountain now took on somewhat an intermittent phase. On the third it was quieter, 4th the same, 5th, 6th, and 7th more active, 8th, 9th and 10th quieter, 11th and 12th more active, 13th, 14th, and 15th quiet.

On July 16 I made a minute examination of the crater. Owing to a favourable wind, and with a muffle over the face, the edge of the innermost one could be reached. This, on which we were standing, was the cone of eruption that was commenced to be formed, in the bottom of the December crater, and whose growth had been going on up to June 29, when the increased activity of that and the following days, converted the top of the chimney into a small crater, at the same time scattering the materials on its outer flanks and increasing the size of the cone. The cavity, of an irregular conical form, was about 45 metres deep, and its apex could have been but little above the level of the outflow of lava that was still proceeding from the old lateral fissure. At the bottom of the crater was the *bocca* or mouth. Its position was slightly excentric, and irregular in form, being about 2×3 metres. It was apparently undercut by the lava that could be distinguished boiling up at a short distance from its edge, the issue of the ordinary column of vapours, carrying with each explosion a few fragments of the plastic mass, thus commencing a fourth cone within the inner crater. Part of the southern wall had crumbled away, showing well the stratification of the beds.

Between the inner cone of 1882 and that of 1881, that is to say, in the fosse-like excavation separating the two, and towards the south-west (below smallest figure in sketch), another *bocca* had opened. From 9 to 10 o'clock a.m., during which my examination had been carried on, only an abundant column of vapour had been emitted. When standing quite close to it, however, it suddenly started into increased activity, emitting a column of ash and lapilli, perpendicularly to some height, reminding one in form of the great geyser column of Iceland. This was due to the slipping of a part of the outer wall, which exhibited the stratification of the December cone. A continual play was maintained for about one hour and a half, when tranquility was restored. Mixed with the stones and lapilli that were being ejected were a few fragments of molten lava, demonstrating the opening to be in direct communication with the principal mass. Although one could approach the edge of the opening nothing could be seen, for the amount of vapour issuing. On that occasion the usual hydrochloric acid smell was strong but mixed with a little sulphurous, and I fancy I could detect a distinct odour of hydrofluoric acid, which is the first time. Of course it is known to exist in small quantities always.

The old lava forming the plain within the 1872 crater, and from which rise the two small cones above described, is much decomposed and covered by fumaroles, in a direction extending due south-west, that is to say, scattered along the same radius as the crateret above mentioned. It would seem from this to be the external evidence of a dyke which has extended in that direction. We might therefore infer that if any lateral opening should soon form it would be somewhere on the south-west of the cone.

H. J. JOHNSTON-LAVIS

THE HUNGARIAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

BUDAPEST, August 28

THE twenty-second meeting of the Hungarian Association for the Advancement of Science has just been concluded. It was held at Debreczin a town of 52,000 inhabitants, and the capital of the great Hungarian Plain. Two hundred and eighty members were present, and of these 132 joined the Medical Section, while the remainder were divided pretty evenly between the Physical and Economic Sections. The Physical Section includes Chemistry, Mathematics, and Astronomy; and the Economic Section includes matters relating to Social Science and Agriculture. Unfortunately the Association does not represent Hungarian science. There is a

strong University party in Budapest opposed to its existence; and they give it no countenance either by their presence or otherwise. Nevertheless we are persuaded that the influence of the Association is good.

Debreczin is a great Calvinist centre. It has been called the "Rome of Calvinists." There is a Calvinist College which educates nearly 2,000 children, boys, and young men. Roughly there are 2,000 Calvinist parishes in Hungary, containing 2,000,000 souls, and of these 560 parishes and 800,000 souls are under the jurisdiction of the Bishop of Debreczin. The Bishop was President of the Association and the Sectional Meetings were held in the College. Great toleration exists in religious matters throughout Hungary, and the Calvinist Bishop and Roman Catholic Præpostor entered the Hall together and sat next to each other during the delivery of the Presidential Address.

On the evening of the first day of meeting, the train from Budapest which conveyed a number of members, was met at the station by the town authorities, and an address of welcome was delivered. We then went to the Town Hall, registered our names, received various publications including a fine volume giving a complete history from every point of view of the town, which has cost the municipal authorities 6000 florins. In the evening we all dined together. On the following day the Presidential Address was delivered at 10 a.m. This was followed by the reading of letters of salutation from various parts of Hungary. A paper was then read by Prof. Török one of the Vice Presidents on the Meteorites of Hungary, and specially on the Kaba meteorite which fell near Debreczin in 1857. This was the period of the Austrian domination, and many meteorites had already been taken from Hungarian museums and transferred to Vienna. A demand was at once made for the Kaba meteorite to be similarly transferred, but the Debreczin authorities answered, "It is true that you have a right to everything on and beneath the earth of Hungary, but this came from Heaven. Hence we propose to keep it here." And it remains in the Debreczin Museum. After the meteorite paper an eulogium was pronounced by Dr. Popper on Dr. Albert Kain, a recently deceased and prominent citizen. A short paper on children's diseases was then read by Prof. Bódogh, and the proceedings terminated at 1 p.m. Soon afterwards the members sat down to a public banquet of a very festive nature, which lasted till nearly 5 o'clock, and was notable for the national dishes, and profusion of native wines and mineral waters; of the latter Hungary possesses no less than *eighty* different varieties.

At 5 o'clock a lecture was given by Dr. Kiss on Hatvani, a professor of physics in the Debreczin College of the last century. He studied in Leyden and was the first to introduce experimental illustration into the college lectures. A good deal of his apparatus was exhibited and the air-pump with a huge horizontal barrel two feet in length and three inches in diameter, was particularly interesting. In principle it scarcely differed from Robert Boyle's second air-pump of the preceding century.

At 9 a.m. on the following day the three sections were formed, and addresses delivered by the Presidents. The Physical Section was presided over by Prof. Hunfalvi of Budapest, and his address was mainly devoted to the Meteorology of Hungary. He dwelt particularly on the great evils resulting from the cutting down of forests, and the climatal changes likely to result therefrom. As wood is commonly burnt for fuel in Hungary, and the winters are very severe, the destruction of forests is proceeding at a great rate. The address was considered of such importance that it was ordered to be printed separately and distributed all over Hungary. The Medical Section was presided over by Prof. Török, and the Economic Section by Prof. Kiraly. The meetings closed at noon, and recommenced again at 3 p.m. At 5 to a

very crowded audience Prof. Antolik gave a lecture on the electric discharge, with some original experiments.

The Sectional Meetings were continued the next day and in the afternoon an excursion was made through the Debreczin Forest to an Agricultural College founded by the Government for the instruction of land agents and managers of large estates. The course extends over three years, and the students pay nearly £21 a year. The institution is a large model farm possessing a good deal of land, and very complete farm buildings in which fine breeds of cattle, horses, and pigs are reared. The bulls and horses are of particularly fine breed. In returning we halted at a forest hotel, dined, and afterwards danced, the national *Csárdás* being of course the most popular. Sectional meetings were continued during the following day, and on August 27 the closing meeting was held. In the afternoon there was an excursion to the salt lakes of Nyiregháza.

The invitations were written in Latin, as of course Hungarian is a language, not much known out of the country. They were worded as follows:—

"Doctores Medicinæ et naturæ scrutatores Hungariæ, hoc anno Debrecinî a 20-27 Mensis Augusti, Congregationem Scientificam sunt celebraturi.

"Cum ad hoc Congregationem D. . . M. . . N. . . . solemniter invitaremus, simul impense, rogamus, ut nos gratissima sua præsèntia honorare, vel aliis hunc honorem delegare, congregationisque medicorum et naturæ scrutatorum in cognoscendo rerum causis positum studium favore et si lubet opera prosequi non dedignentur.

"Dissertationes de naturâ rerum agentes, secundum statuta congregationis, quâcunque linguâ haberi possunt.

"Sincerissimam quam possumus salutationem exhibentes perseveramus. Debrecinî, 4 Mai, 1882."

A few years ago Latin was commonly spoken by educated Hungarians, and Latin words are now frequently used in intercourse with foreigners. One morning when I was looking for my host, his little son gravely gave me a letter which he had rapidly penned, expressed with the following charming naïveté:—"Domine Professor! Meus pater est in Collegio. Si Vestra Dominatio alloqui illum vult, voco statim domo. Hora nona certe redibit." And while on the subject of colloquial Latin in this country, we are fain to remember the story of the English sailor, who was rolling a gigantic piece of tobacco in his mouth, to whom a Hungarian, unused to the custom said, pointing to the distended cheek, "Quid est hoc?" whereupon the sailor answered readily, "Hoc est quid."

It is impossible to conclude this short notice of a very interesting scientific meeting, without mention of the extraordinary cordiality and hospitality of the town of Debreczin.

G. F. RODWELL

THE BRITISH ASSOCIATION

THE number of papers in the two leading departments of the Biological Section were very few this year, as indeed they have been for some years, and therefore it was decided by the General Committee that the number of departments of that section be reduced from three to two. Next year's meeting was fixed for September 19, with the view of bringing it towards the close of the holidays rather than in the middle of them. A formal resolution was also passed authorising the Council to make the best arrangements they can for securing an equal representation of all the sections at the meeting proposed to be held at Montreal in the succeeding year. One or two speakers seemed to doubt whether the matter could be regarded as finally settled. A suggestion was made that a meeting should be held in this country as usual, and that the vice-presidents should go to Canada as delegates. It was stated on both sides that members were absent at Monday's meeting whose votes would have materially affected the decision arrived at. It is